



Neuroscience  
Institute

Newsletter

2022 | Issue 1



# HEMISPHERE



UNIVERSITY OF CAPE TOWN  
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD



# Welcome

## From the director

Prof Graham Fieggen



While 2020 may have seen the launch of the Neuroscience Institute, 2022 was the year we really hit our stride. With the pandemic receding, there's been a surge of academic activity in the beautiful space we are privileged to occupy, and we hope you'll enjoy reading about this.

A generous donation by the Gabriel Foundation allowed us to award 9 intramural grants for innovative research projects this year. NI investigators have been highly successful with external grant applications, leveraging R350 million in project funding over the past year, and 2 flagship projects are taking shape- growing research capacity in traumatic brain injury (Prof Anthony Figaji) and addressing the massive knowledge gap in African neurogenomics through the African Brain Health Genomics project (Prof Dan Stein).

This year saw completion of our fundamental neuroscience lab, a core facility for NI members, exciting ventures to grow the neuroscience community such as NeuroCafé and the Young Investigators Forum, and many notable achievements by our members- including well-deserved *ad hominem* promotions. We are excited to share news of our novel Master of Neuroscience program, which builds on the success of the Honours course, and are proud to showcase the specially commissioned artworks that reflect the work of the NI and acknowledge the donors who made this possible, as well as our major partners- the University of Cape Town and Groote Schuur Hospital.

I want to thank those who contribute so much to the NI- Dr Jacquie Bracher's flair as our Research Enterprise Manager, Zoë Boshoff's commitment to support emerging researchers and Delight Masocha's highly professional work as our Facilities and Events Manager make this a very special place to work. As you'll read, Dr Melike Fourie is developing the new Masters in Neuroscience program and Dr Hayley Tomes has been finding many great stories to tell as our newly appointed Communications Officer- which you'll read about in the pages that follow.

Thank you to deputy director Prof Kirsty Donald, to our members for your contributions over the past year, and to our funders, collaborators, colleagues and partners who have believed in the work of the NI and supported us over the past year. May you all enjoy a peaceful break over the festive season and return refreshed and ready for a fabulous year in 2023.



## From the deputy director

Prof Kirsty Donald

2022 has been a wonderful year for the Neuroscience Institute. Following the days of social distancing, the year has seen the NI buzzing with students, clinicians and researchers connecting with each other and exploring ideas at the boundaries of our field.

The year started with the launch of the NI's 2022-2026 scientific research strategy – the outcome of a broad collaboration that brought together highly skilled researchers across differing career stages from over fifteen different disciplines. The mission we have adopted is *to advance research, training and advocacy through an interdisciplinary network of scientists and clinicians, sharing skills and expertise to improve lives and advance our understanding of the human brain.*

Partnering with the Wellcome Trust, we also played a leading role hosting scientists from across Africa to explore the potential for enhancing the connection between basic and clinical neuroscience in the African research ecosystem. The Showcasing African Neuroscience event highlighted the best examples of local research and the significant potential for new discoveries from the diverse populations and health challenges unique to our continent.

Following from these initiatives, the NI is becoming an important hub for showcasing African neuroscience and nurturing and supporting neuroscientists: We're working hard to create a support and mentorship framework for students and early career researchers from across Africa and the world. Already, our honours in neuroscience course has been a huge success.

In addition, nine NI emerging researchers were supported through a rigorous process of creating research development strategies. The NI development team will support these researchers on an ongoing basis to resource their strategies through donor funding and grant writing assistance.

I am confident that as we continue to grow our investment in neuroscience in Africa, our scientists will achieve further exciting breakthroughs that will improve the lives and prospects of people in the South African context and beyond, and advance our understanding of the human brain.



## Fundamental Neuroscience Lab



*The Fundamental Neuroscience Lab* on D floor is now complete thanks to the vision of Professor Anthony Figaji and Associate Professor Ursula Rohlwick, and the commitment and ingenuity of Lab Manager Lisa Rae Ungerer. The lab houses a Biosafety level 3 (BSL3) facility, is equipped for DNA and RNA extraction as well as for cell culture and houses a biorepository. This was enabled by a joint research grant from the South African Medical Research Council (SAMRC) and the Gabriel Foundation.



## Donor wall



## Hospital archway



The Hospital Street entrance to the NI was beautified by a specially commissioned work by Pippa Skotnes, Professor of Fine Art and director of the Centre for Curating the Archive at the University of Cape Town. This striking installation faces artwork commissioned for the opening of Groote Schuur Hospital by Pippa's father, the late Cecil Skotnes, a renowned South African artist.

Our magnificent donor wall (left) was conceptualised and created by the talented Fritha Langerman, Associate Professor at the Michaelis School of Fine Art.

Both artworks were inspired by the pioneering work of Santiago Ramon y Cajal and include a range of thought-provoking elements reflecting the world of neuroscience. Look out for the unveiling event in 2023...



## Grant News

Please join us in congratulating Assoc Prof Joseph Raimondo, Assoc Prof Ursula Rohlwink, Dr Pieter Naudé and Ms Jessica Ringshaw on being awarded Wellcome Trust Fellowships, and Prof Kirsty Donald was awarded a prestigious Wellcome Leap grant. Prof Anthony Figaji and Prof Peter Hutchinson (Cambridge) were awarded a grant by NIHR for a multi centre Acute Brain and Spine Injury study.

Dr Nynke Groenewold and Dr Jonathan Ipser received a NIH RO1 grant for a project investigating brain development of children born to depressed mothers comparing socioeconomic status.

The Neurology Research Group, headed by Professor Jeannine Heckmann, were funded by the ALS Association Seed Grant programme to establish an African-ALS network.

Kaitlyn Sparks, one of our neuroscience honours students, was awarded a Rhodes Scholarship to attend Oxford University to pursue a masters and PhD in 2023.



## Ad hominem promotions

Congratulations to the following members on their promotion this year:

*To Senior Lecturer*

Dr Rachael Dangarembizi

*To Associate Professor*

Assoc Prof Lawrence Tucker

Assoc Prof Nastassja Koen

Assoc Prof Nico Enslin

Assoc Prof Sam Nightingale

Assoc Prof Tory Madden

Assoc Prof Ursula Rohlwink

Assoc Prof Yumna Albertus

## Gabriel Grants

The inaugural Gabriel Grants were awarded in 2022 to 9 deserving projects selected for based on 'most ground-breaking research' by an independent panel of judges.

The recipients of the Gabriel Grants are:

Dr Dorit Hockman

Assoc Prof Joseph Raimondo

Assoc Prof Leigh Schrieff-Brown

Dr Lerato Majara

Dr Melissa Nel & Prof Jeannine Heckmann

Dr Mubeen Goolam

Dr Rachael Dangarembizi

Assoc Prof Ursula Rohlwink

Assoc Prof Yumna Albertus & Assoc Prof Nico Enslin



## Growing a community



The Innovation Lab (above) led by Assoc Prof Nico Enslin hosted a variety of informative workshops this year.

Zoë Boshoff and Dr Jacqueline Bracher (upper left) have been hard at work finding funding sources for a variety of projects.

Prof Tobias Bonhoeffer and David & Ursel Barnes (middle left) brainstorming ideas with emerging researchers.

The auditorium hosted many exciting events, such as Dr Rachael Dangarembizi (above) describing her inspiring journey in science, and our NI members meetings.



## NeuroCafé

NeuroCafé in the atrium is intended to showcase new work and brainstorm ideas in a relaxed, convivial setting. Our inaugural event featured the Gabriel Grant awardees who bastioned white boards presenting their research projects to a delighted audience of members and postgrad students. Snacks, drinks, merriment and inspiration were in abundance. Watch out for more in 2023 as this becomes a monthly event...





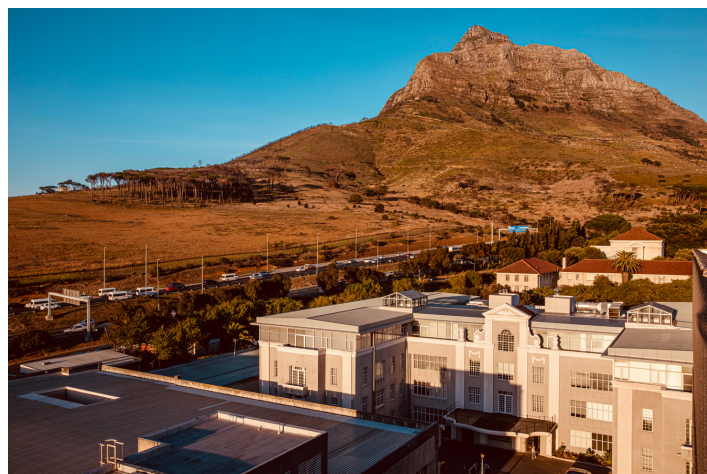
## Master of Neuroscience

An exciting development at the NI is the creation of a new taught Master's programme in neuroscience, destined to launch in 2025. A programme of this nature has long been envisioned by Prof Graham Fieggen, director of the institute, and is now being implemented by Dr Melike Fourie. "This programme will draw on the skills and strengths of our members to develop neuroscience expertise in students from a wide range of backgrounds, and we hope to set a new benchmark in interdisciplinarity at UCT" says Fieggen.

Connecting across departments and even faculties, the programme has been termed a Master of Neuroscience to reflect the fact we are creating something new. At its core this will broaden entry into the field of neuroscience by equipping students from diverse academic backgrounds with foundational knowledge to pursue successful careers as researchers or in any of the applied fields.

In addition, the programme will aim to cultivate graduates who can engage meaningfully with the complexities and ethics involved in the field of neuroscience more broadly. Ultimately, the goal is to expand neuroscience in South Africa and on the African continent, contributing much-needed diversity to the field.

We are especially grateful to Amanda Petra Barratt of the UCT Academic Planning Unit for her expert advice and guidance.



The Neuroscience Institute nestled at the foot of Devil's Peak. Photo taken by the talented Karin Schermbrucker, of Slingshot media.

## General news

Dr Mubeen Goolam was named one of the *Mail & Guardian's* 200 Young South Africans 2022 and also selected for the South African Young Academy of Science, as one of 10 new initiates.

Dr Rachael Dangarembizi gave an inspiring TedEx talk entitled 'Nothing wrong with my African Brain'

Profs Ernesta Meintjes and Anthony Figaji are now members of the UCT College of Fellows.

Prof Jacqueline Hoare was inducted into the Academy of Science of South Africa

Prof Dan Stein was named one of the world's most cited scholars.



## Some visitors to the NI



Sir Rory Collins, Director of the UK Biobank



Dr Joshua Gordon, Director of the National Institute of Mental Health (NIMH), USA

If you publish a paper and would like it written up as an article contact Hayley at [hayley.tomes@uct.ac.za](mailto:hayley.tomes@uct.ac.za)



## A few recent publications

The crucial process of learning to read: what does neuroscience say? [read more](#)

Stop, Look, Listen - consideration of contextual and local factors is critical when studying mental health. [read more](#)

The curious case of the trolley problem and the basolateral amygdala. [read more](#)

Provision of mental health care to healthcare workers during COVID-19: A call for the practice of vulnerability. [read more](#)

Chronic binge drinking may prematurely age your brain. [read more](#)

Why won't it stop? Understanding treatment-resistant epilepsy. [read more](#)

What's the fuss about folic acid? [read more](#)

How to prevent behavioural problems, *in utero*. [read more](#)



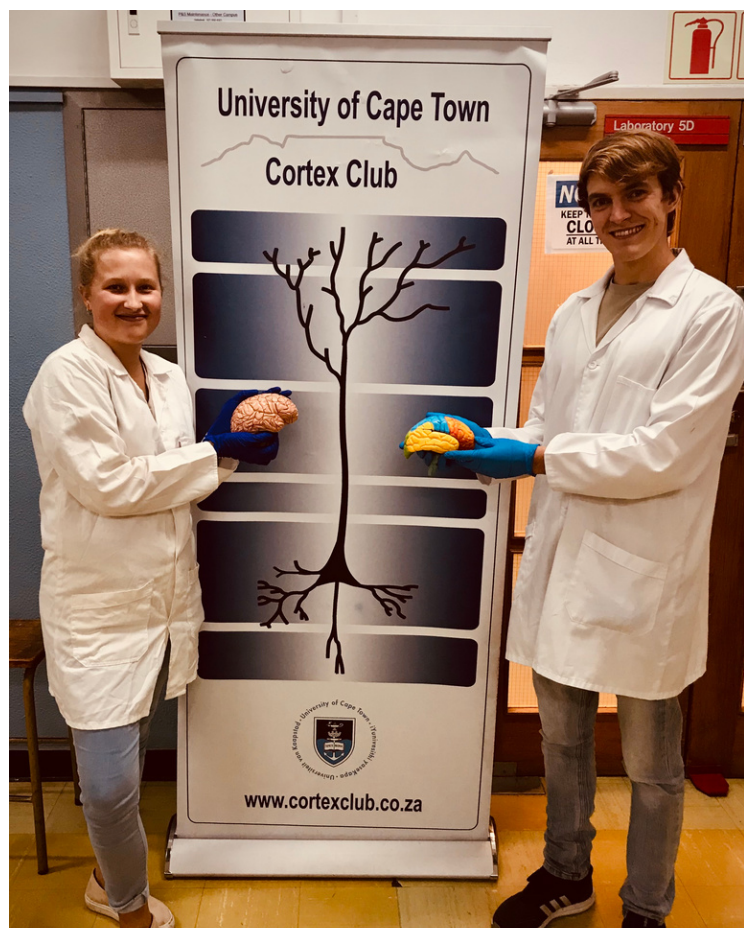
Dr Patrick Soon-Shiong, South African surgeon, innovator and philanthropist reads Dr Christiaan Barnard's doctoral thesis on tuberculous meningitis



## Cortex Club

The Cortex Club has hosted a wide range of well attended events this year including talks and documentary screenings with topics ranging from 'Painting a portrait of Tuberculosis meningitis', 'Exploring the prevalence of neurodisabilities in young offenders' to 'Molecular mechanisms in Autism spectrum disorders.'

They finished the year with a human brain workshop that left members feeling in awe and, more than a little, existential- read more [here](#).



## Young Investigator's Forum

The idea was simple – to explain your research to an audience of postgraduate students and fellow researchers using only a pen and a whiteboard and the prompt question provided.

The Atrium was abuzz with excited conversation and the squeak of markers as concepts were drawn out to the nodding, though sometimes momentarily bewildered, faces of onlookers. This was the scene at the Young Investigator forum event on the 25th of March 2022





Fifty six grade 7 pupils from Mfuleni got to share in the magic that is the Neuroscience Institute during *Brain Awareness Week*, indulging in a jam-packed line-up of talks, demonstrations and activities on the 16th of March 2022.

Full article on the [website](#)





## Graduating Students

**Congratulations to the following students who graduated this year, and to their supervisors on their students' success**

### Honours

**Ashraf Moosa**

A novel split-stream ventricular CSF microdialysis system: Impact on metabolite and drug recovery and sample volume  
*Anthony Figaji & Jill Combrinck*

**Bianca Rijkmans**

Refinement of microdialysis for drug recovery in ventricular CSF  
*Anthony Figaji & Jill Combrinck*

**Imraan Dixon**

Towards personalized medicine in Africans by developing clinical genome interpretation strategies for genetic neuropathies within the African context  
*Melissa Nel & Jeannine Heckmann*

**Kaitlyn Sparks**

Genomics research in Southern Africa: Confirming a NEK1 gene burden amongst African genetic ancestry ALS patients  
*Melissa Nel & Jeannine Heckmann*

**Limpho Thipane**

Regulators of neuroimmune function in the manifestation of central nervous system tuberculosis in the absence of microglia  
*Muazzam Jacobs & Nai-Jen Hsu*

**Nimra Khan**

Investigating the survival rate of leukocytes in cerebrospinal fluid samples of paediatric patients with and without neuroinflammation  
*Ursula Rohlwink*

**Pearly Joubert**

Effect of neurohumoral stimulation on stem cell-derived cardiac-like cells  
*Asfree Gwanyanya & Kauthar Samodien*

**Petra Makua**

The effect of hyperglycaemia on the ex-vivo rat retinal model in pursuit of defining the early pathogenesis leading to diabetic retinopathy  
*Asfree Gwanyanya & Liz van der Merwe*

**Talya Kebonte**

The effect of sodium propionate on mitochondria in SH-SY5Y cells  
*Colleen O'Ryan, Caitlyn Mahony & Emma Frickel*

**Yanelisa Pulani**

A quantitative study of the microanatomy of the supragranular layers of the pyramidal neurons in normal and abnormal brain tissue from infants and adults  
*Joseph Raimondo, Matthijs Verhoog & Roxanne Hattingh*

**Yibanathi Dyasi**

The test-retest reliability of the relative intensity judgement task  
*Tory Madden & Romy Parker*



## Masters

### **Gabby Singh**

The influence of fixation and cryopreservation of cerebrospinal fluid on antigen expression and cell percentages by flow cytometric analysis

*Ursula Rohlwink & Anthony Figaji*

### **Rentia Lourens**

Development of an in vitro drug recovery model for paediatric tuberculous meningitis using microdialysis with in vivo application

*Anthony Figaji*

### **Stephanie Fillmore**

Exploring the gene regulatory dynamics of the maturing human brain

*Dorit Hockman*

## PhD

### **Antoinette Burger**

Investigating neuroinflammation in schizophrenia: a proton magnetic resonance spectroscopy (1H-MRS) and cytokine study

*Dan Stein*

### **Dimpho Ralefala**

Expectations and preferences of parents and adolescents regarding feedback of individual genetic findings in an HIV-TB genomic research project in Botswana

*Jantina DeVries, Mary Kasule & Mogomotsi Matshaba*

### **Jennifer Hsieh**

Neurocircuitry of attention in Methamphetamine induced psychosis: A comparison against schizophrenia patients and healthy controls

*Dan Stein*

### **Lauren Blake**

Modelling neuroinflammation in schizophrenia and methamphetamine-induced psychosis: a structural magnetic resonance imaging and cytokine study

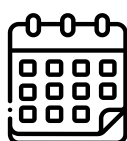
*Dan Stein, Fleur Howells & Anne Uhlmann*

### **Mary Mufford**

Amygdala nuclei: Genetic architecture and associations with PTSD and related symptom measures

*Dan Stein*

## 2023 NB Dates



**March 13-19 Brain Awareness Week**

**March 22-24 Edvard Moser (Nobel Prize 2014) and Tobias Bonhoeffer visit the NI**

**March 31 NI Research Symposium**



## Get to know your barristas



Truly the life-blood of the NI are our two baristas- they keep our blood caffeinated and our minds focussed.

### Mondé

Mondé's coffee of choice is an americano, indicative of his purist nature. He's enjoyed learning the art of the grind on his self-professed journey from Ricoffy to roastery. He finds the people in the NI to be 'amazing' and to have a real respect for his craft.

When not churning out up to 300 cups of coffee per day he can be found spending quality time with his sister or doubling as a part-time painter.



### Luke

Luke is a single espresso man who values conversations with his customers and enjoys honing his ability to figure out what people need and how to exceed their expectations. He makes every cup of coffee as if he is making it for himself.

Luke is a passionate gardener and father to an almost 5 year old and is always looking for opportunities to learn. He says the NI is 'about the future' and appreciates being a part of it



#### Victory coffee!!

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